Attorney Docket No. UMC.10003 Page 2 of 11

Application No.: 10/719,134 Amdt. Dated: February 13, 2007

Reply to Office Action Dated: December 20, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended): A process for the manufacture of a LiMPO₄ powder, comprising the steps of:

providing an equimolar aqueous solution of Li¹⁺, Mⁿ⁺, and PO₄³⁻ prepared by dissolving components which are susceptible to coexist as solutes in an aqueous system and which, upon heating at a temperature below 500° C, decompose to form a pure homogeneous Li and M phosphate precursor;

evaporating water from the solution, thereby producing a solid mixture; decomposing the solid mixture at a temperature below 500° C to form a pure homogeneous Li and M phosphate precursor; and

annealing the precursor at a temperature of less than 800° C in an inert or reducing atmosphere, thereby forming a LiMPO₄ powder of olivine structure;

wherein M^{n+} is one or more of Fe^{2+} , Fe^{3+} , Co^{2+} , Ni^{2+} , and Mn^{2+} , and M is $Fe_xCo_yNi_zMn_w$, with $0 \le x \le 1$, $0 \le y \le 1$, $0 \le z \le 1$, $0 \le w \le 1$, and x + y + z + w = 1.

Claim 2 (Original): The process according to claim 1, wherein in the step of annealing the precursor, the annealing temperature is less than 600° C.

Claim 3 (Currently amended): A process for the manufacture of a LiFePO₄ powder, comprising the steps of:

providing an equimolar aqueous solution of Li¹⁺, Fe³⁺, and PO₄³⁻ prepared by dissolving components which are susceptible to coexist as solutes in an aqueous system and which, upon heating at a temperature below 500° C, decompose to form a pure homogeneous Li and Fe phosphate precursor;

evaporating water from the solution, thereby producing a solid mixture; decomposing the solid mixture at a temperature below 500° C to form a pure homogeneous Li and Fe phosphate precursor; and

annealing the precursor at a temperature of less than 800° C in a reducing atmosphere, thereby forming a LiFePO₄ powder of olivine structure.

Attorney Docket No. UMC.10003 Page 3 of 11

Application No.: 10/719,134 Amdt. Dated: February 13, 2007

Reply to Office Action Dated: December 20, 2006

Claim 4 (Original): The process according to claim 3, wherein in the step of annealing the precursor, the annealing temperature is less than 600° C.

Claim 5 (Currently amended): The process according to elaims claim 3, wherein the Fe³⁺ bearing component is iron nitrate.

Claim 6 (Currently amended): A powder for use in lithium insertion[[-type]] electrodes with a formula LiMPO₄ having an average particle size of less than 1 μ m, wherein M is Fe_xCo_yNi_zMn_w, with $0 \le x \le 1$, $0 \le y \le 1$, $0 \le z \le 1$, $0 \le w \le 1$, x + z + w > 0, and x + y + z + w = 1.

Claim 7 (Original): The powder according to claim 6, wherein M is Fe, the powder having a reversible electrode capacity of at least 65% of a theoretical capacity when used as an active component in a cathode that is cycled between 2.70 and 4.15 V vs. Li⁺/Li at a discharge rate of C/5 at 25° C.

Claim 8 (Currently amended): A powder for use in lithium insertion[[-type]] electrodes prepared by a process comprising the steps of:

providing an equimolar aqueous solution of Li¹⁺, Mⁿ⁺, and PO₄³⁻ prepared by dissolving components which are susceptible to coexist as solutes in an aqueous system and which, upon heating at a temperature below 500° C, decompose to form a pure homogeneous Li and M phosphate precursor;

evaporating water from the solution, thereby producing a solid mixture;

decomposing the solid mixture at a temperature below 500° C to form a pure homogeneous Li and M phosphate precursor; and

annealing the precursor at a temperature of less than 600° C in an inert or reducing atmosphere, thereby forming a LiMPO₄ powder <u>of olivine structure and having an average</u> particle size of less than 1 μm;

wherein M^{n^+} is one or more of Fe^{2^+} , Fe^{3^+} , Co^{2^+} , Ni^{2^+} , and Mn^{2^+} , and M is $Fe_xCo_yNi_zMn_w$, with $0 \le x \le 1$, $0 \le y \le I$, $0 \le z \le I$, $0 \le w \le 1$, and x + y + z + w = 1.

Claim 9 (Original): The powder according to claim 8, wherein Mⁿ⁺ is Fe³⁺, M is Fe and the annealing occurs in a reducing atmosphere.

Attorney Docket No. UMC.10003 Page 4 of 11

Application No.: 10/719,134 Amdt. Dated: February 13, 2007

Reply to Office Action Dated: December 20, 2006

Claim 10 (Currently amended): A battery comprising a lithium insertion[[-type]] electrode including a powder prepared by a process comprising the steps of:

providing an equimolar aqueous solution of Li¹⁺, Mⁿ⁺ and PO₄³⁻ prepared by dissolving components which are susceptible to coexist as solutes in an aqueous system and which, upon heating at a temperature below 500° C, decompose to form a pure homogeneous Li and M phosphate precursor;

evaporating water from the solution, thereby producing a solid mixture;

decomposing the solid mixture at a temperature below 500° C to form a pure homogeneous Li and M phosphate precursor; and

annealing the precursor at a temperature of less than 600° C in an inert or reducing atmosphere, thereby forming a LiMPO₄ powder of olivine structure and having an average particle size of less than 1 µm;

wherein M^{n^+} is one or more of Fe^{2^+} , Fe^{3^+} , Co^{2^+} , Ni^{2^+} , and Mn^{2^+} , and M is $Fe_xCo_vNi_zMn_w$, with $0 \le x \le 1$, $0 \le y \le 1$, $0 \le z \le 1$, $0 \le w \le 1$, and x + y + z + w = 1.

Claim 11 (Currently amended): The battery according to claim 10, wherein the powder has an average particle size of less than 1 μ m and x + z + w > 0.

Claim 12 (Original): The battery according to claim 11, wherein M is Fe, the powder having a reversible electrode capacity of at least 65% of a theoretical capacity when used as an active component in a cathode that is cycled between 2.70 and 4.15 V vs. Li⁺/Li at a discharge rate of C/5 at 25° C.

Claim 13 (Original): The battery according to claim 10, wherein M^{n+} is Fe^{3+} , M is Fe, and the annealing occurs in a reducing atmosphere.

Claims 14-17 (Cancelled)